

The Boundary Conditions for SPring-8 Future Plans

Chicago: June 2nd, 2003

Akira Kira, Director JASRI/SPring-8

Review by the Government

The phase has shifted from construction to utilization.

Have strategies

Provide stronger support to improve industrial application

“From the improvement of machine to the enhancement of assistance to the users.”

	Academic Research	Industrial Application
Expectation	50%?	50%?
Reality		
Initial	94 (86)	6 (14)
Present	90 (82)	10 (18)

() including co-operation with academia.

Industrial Applications

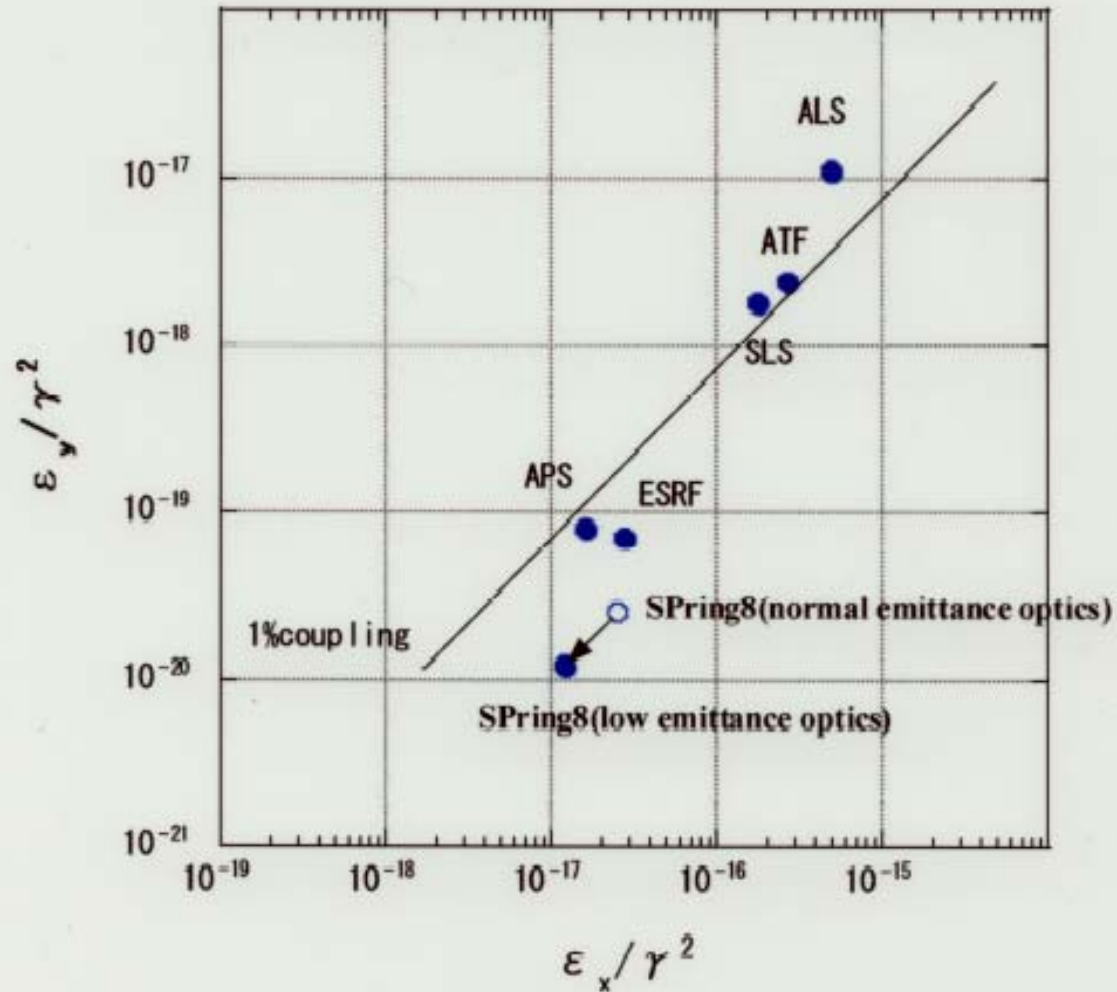
- **Investors' Strong Interest (Scientists' Little Concern)**
- **Misunderstandings and Frustrations**
- **Real Potential of Japanese Industries**
- **Enhancement of Facility's Support**
- **Co-operation with Academia**

What are going on now at SPring-8

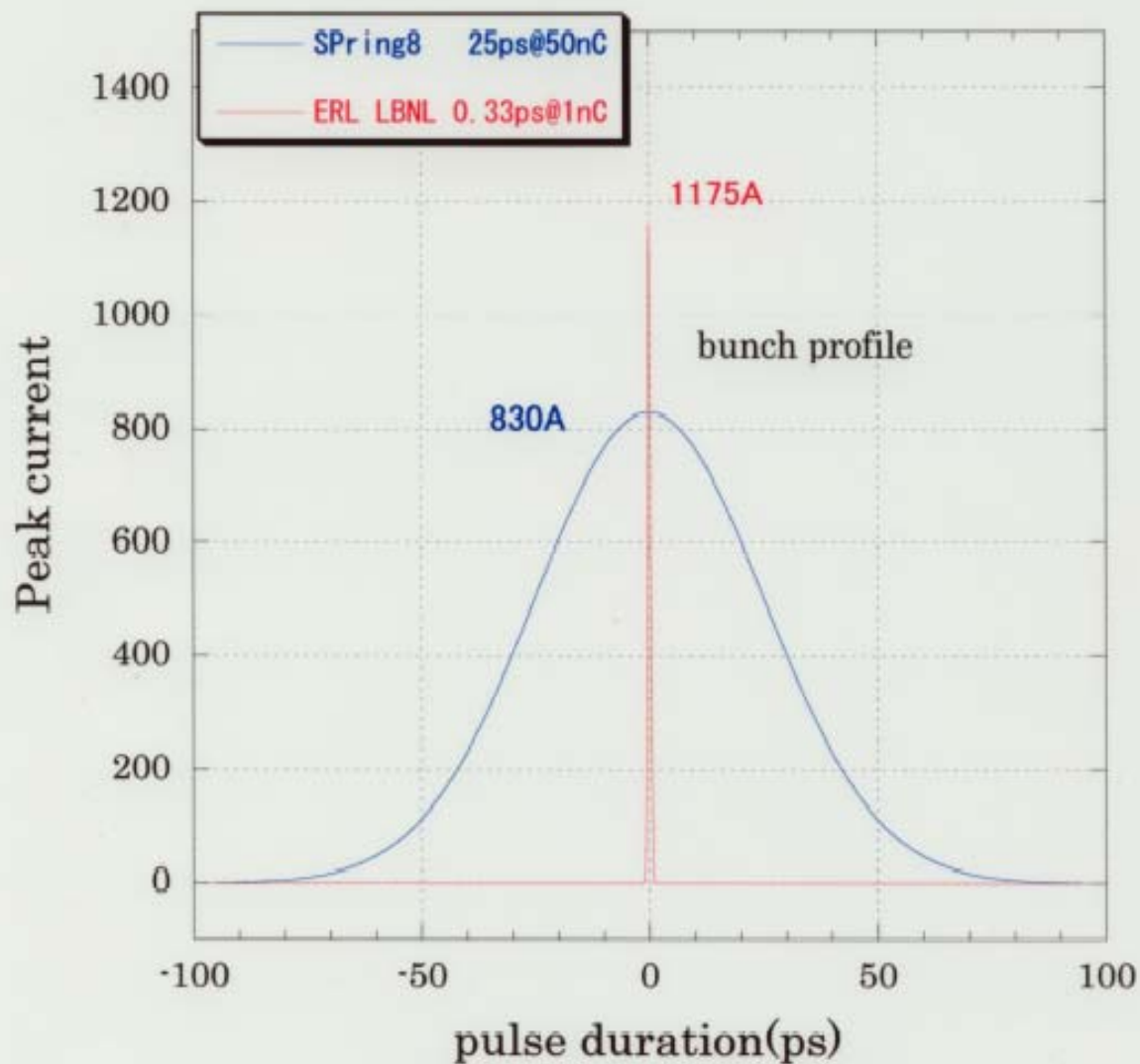
- **MACHINE**
 - Top-Up Operation
 - Short Pulses
 - SC-Wiggler – High-Energy X-ray – Neutron
- **BEAMLINE CONSTRUCTION**
 - No budgetary approval for new public beamlines
 - Some proposals for contract beamlines
- **UTILIZATION PROCEDURES**
 - Priority Use (Field, Power Users, Strategic Project)
- **INNOVATION OF ORGANIZATION**
 - Re-structuring of JASRI (to slim and flexible structure)
 - Change in the status of JAERI and RIKEN
- **STRONG SUPPORT FOR INDUSTRIAL APPLICATIONS**

Horizontal and vertical emittance normalized by γ^2

$$\gamma = E_e/m_e c^2$$



Comparison of peak current and bunch profile between SPring8 and ERL(LBNL)

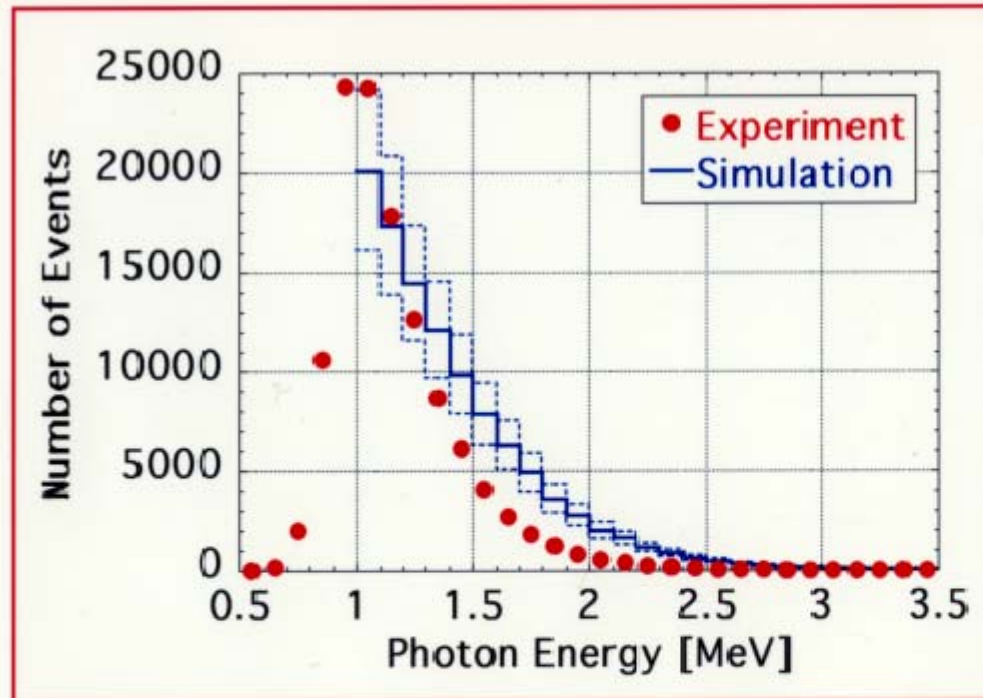


Aim

Generation of High-Energy γ -Rays in MeV-Region
with
10 T Superconducting Wiggler (*by Budker INP*)
installed in
8 GeV Electron Storage Ring (*at SPring-8*)

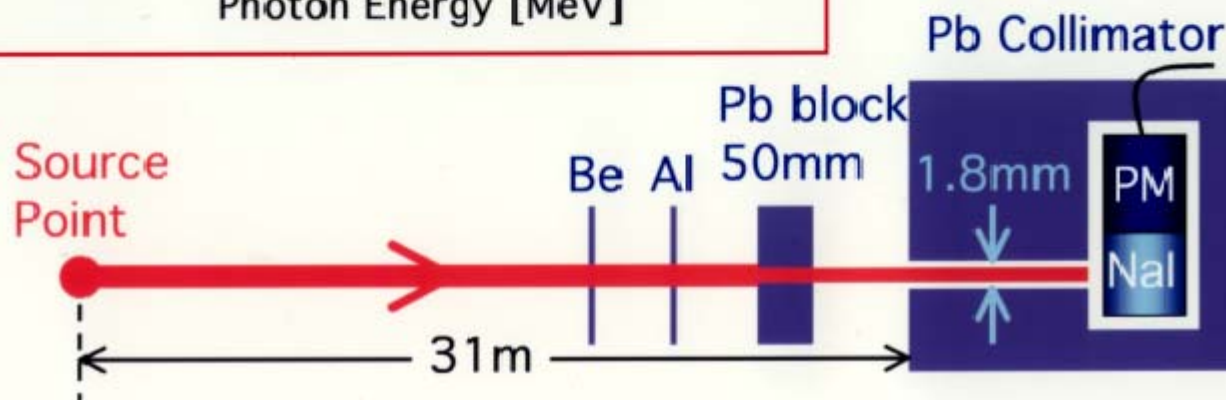


Photon Energy Spectrum



Stored beam was scraped by bump magnets.

Stored current was estimated by photon-counting method:
8pA ($\pm 20\%$)



What are going on now at SPring-8

- **MACHINE**
 - Top-Up Operation
 - Short Pulses
 - SC-Wiggler – High-Energy X-ray – Neutron
- **BEAMLINE CONSTRUCTION**
 - No budgetary approval for new public beamlines
 - Some proposals for contract beamlines
- **UTILIZATION PROCEDURES**
 - Priority Use (Field, Power Users, Strategic Project)
- **INNOVATION OF ORGANIZATION**
 - Re-structuring of JASRI (to slim and flexible structure)
 - Change in the status of JAERI and RIKEN
- **STRONG SUPPORT FOR INDUSTRIAL APPLICATIONS**

(May '03)

BEAMLINES

	In Operation	Under Construction
Public	25	0
Contract	9	0
JAERI/RIKEN	9	2
Diagnosis	1	1
Total	44	3

What are going on now at SPring-8

- **MACHINE**
 - Top-Up Operation
 - Short Pulses
 - SC-Wiggler – High-Energy X-ray – Neutron
- **BEAMLINE CONSTRUCTION**
 - No budgetary approval for new public beamlines
 - Some proposals for contract beamlines
- **UTILIZATION PROCEDURES**
 - Priority Use (Field, Power Users, Strategic Project)
- **INNOVATION OF ORGANIZATION**
 - Re-structuring of JASRI (to slim and flexible structure)
 - Change in the status of JAERI and RIKEN
- **STRONG SUPPORT FOR INDUSTRIAL APPLICATIONS**

Priority Policy

● Introduction of Priority(2003)

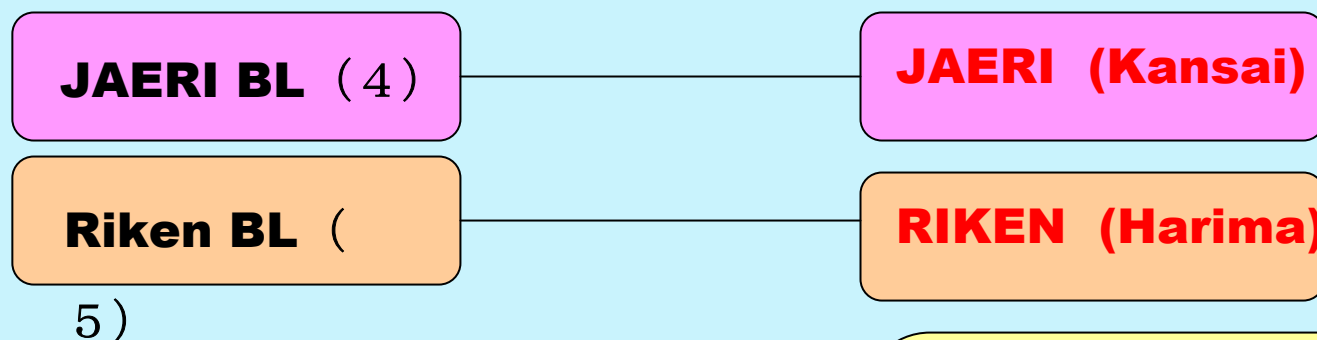
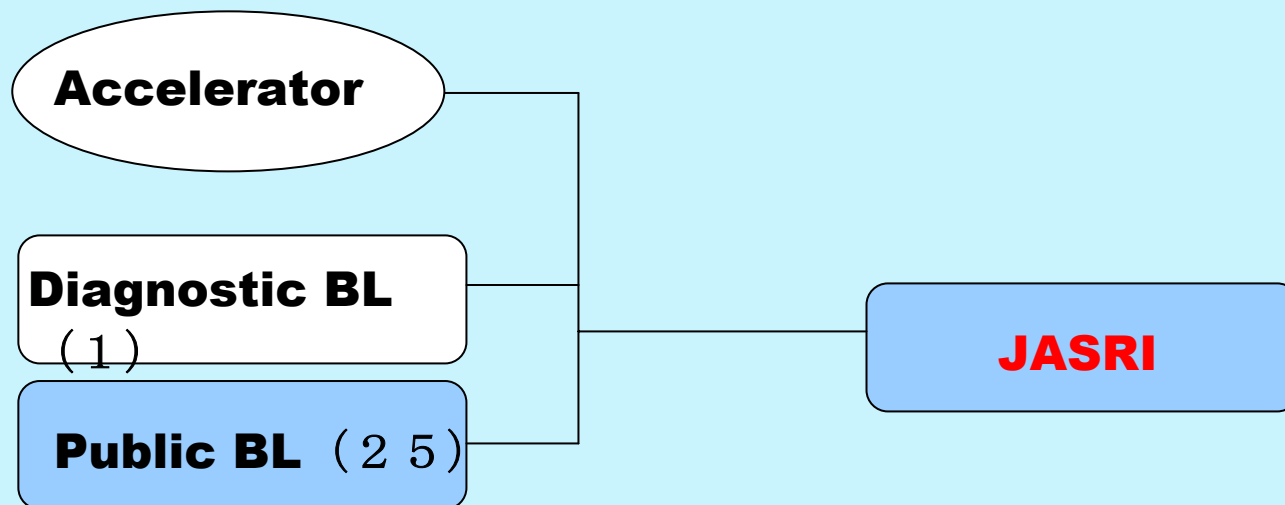
Priority Fields:

Protein 3000, Nano-Tech Support, Trial Use

Power Users:

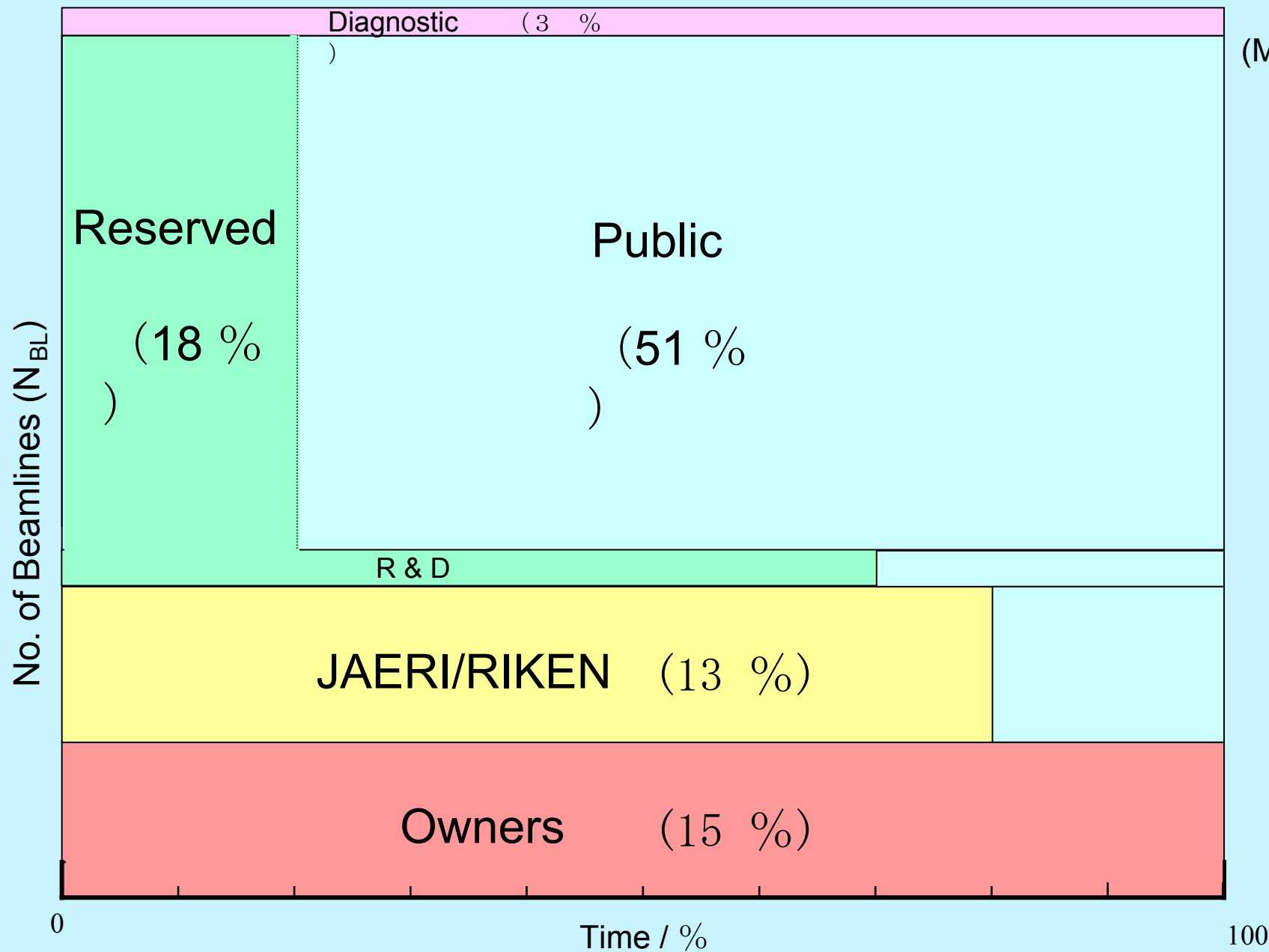
Privilege in beam time: Duty in user support.
For 5 beamlines.

Strategic Subject



BEAM SHARE ($N_{BL} \times \text{Time}$)

(March '02)



What are going on now at SPring-8

- **MACHINE**

- Top-Up Operation

- Short Pulses

- SC-Wiggler – High-Energy X-ray – Neutron

- **BEAMLINE CONSTRUCTION**

- No budgetary approval for new public beamlines

- Some proposals for contract beamlines

- **UTILIZATION PROCEDURES**

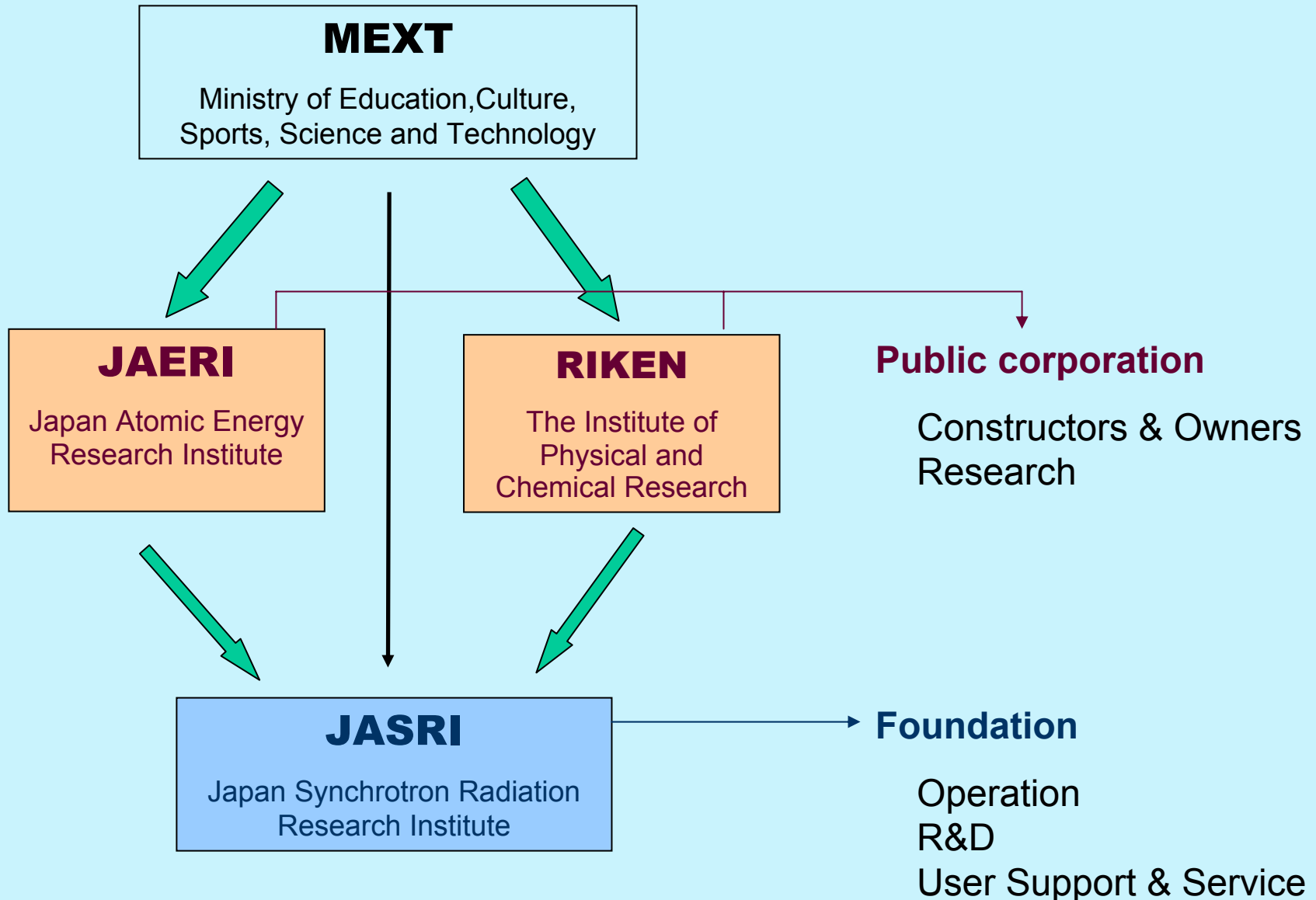
- Priority Use (Field, Power Users, Strategic Project)

- **INNOVATION OF ORGANIZATION**

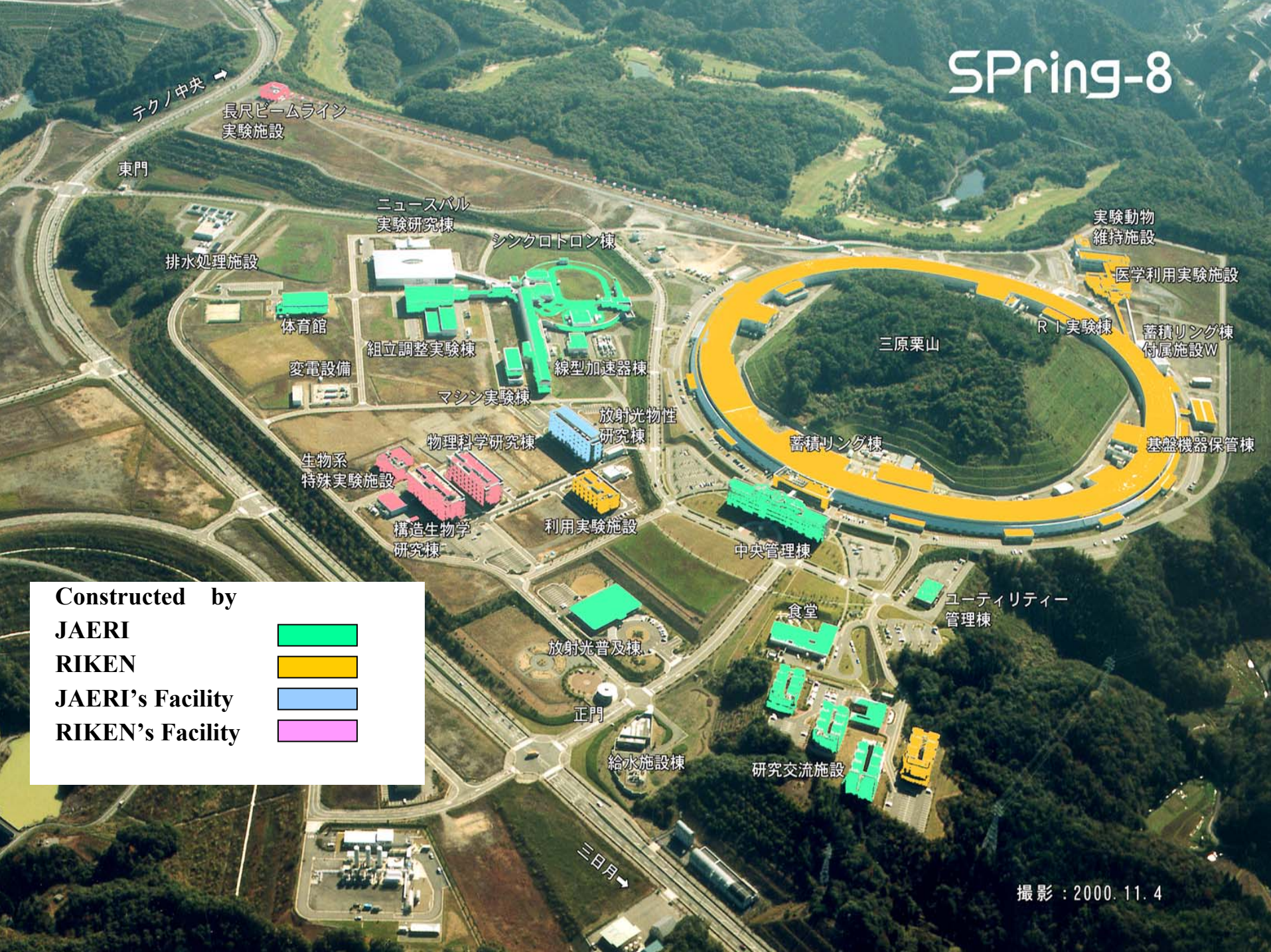
- Re-structuring of JASRI (to slim and flexible structure)

- Change in the status of JAERI and RIKEN

- **STRONG SUPPORT FOR INDUSTRIAL APPLICATIONS**



SPring-8



Constructed by
JAERI
RIKEN
JAERI's Facility
RIKEN's Facility



撮影：2000.11.4

Change of JAERI and RIKEN in Innovation of Public Corporations

**From Public Corporations
To Independent Administrative Institution (IAI)**

**JAERI will be merged with JNC* and change
to IAI on 2004(?) and may concentrate on atomic energy.**

RIKEN is to change its status to IAI on October 2003.

(* JNC = Japan Nuclear Cycle Development Institute)

Pursuit of the Highest Standard of the Facility

- MACHINE Initiative:
 - Development and Improvement of the Machine
 - The Next-Generation Machine (=FEL?)
- USERS' Initiative:
 - Further Demands for the Machine
(The machine presently seems to be ahead of users' demands.)

It is required to demonstrate before proposing
further development of the facility

- Outcomes that can appeal the necessity of the development
and improvement of the
machine
- The success in industrial applications

For Further Development of the Machine:

Feed-backs from users are essential.

Excellent results that can convince society

More successful results in industrial application are required.

Higher demands for the machine

Majority is satisfied with the present beam.

Pursuit of the Highest Standard of the Facility

- MACHINE Initiative:
 - Development and Improvement of the Machine
 - The Next-Generation Machine (= FEL?)
- USERS' Initiative:
 - Further Demands for the Machine
(The machine presently seems to be ahead of users' demands.)

It is required to demonstrate before proposing
further development of the facility

- Outcomes that can appeal the necessity of the development
and improvement of the
machine
- The success in industrial applications